

WHAT IS CLAIMED IS:

1. A method for enhancing the sterilization of a lumen, said lumen having at least a first end and a second end, said method comprising:

5 enclosing said lumen and a container in a chamber, wherein said container has at least one interface on a wall of said container, wherein said container does not contain germicide, and wherein said lumen is placed across said at least one interface such that the first end of the lumen is in the container and the second end of the lumen is in the chamber;

10 introducing a germicide into said chamber;  
creating a higher pressure in said chamber than in said container; and  
flowing said germicide from said chamber into said container through said lumen.

15 2. The method of Claim 1, further comprising evacuating said chamber before introducing said germicide into said chamber.

3. The method of Claim 1, further comprising evacuating said chamber after flowing said germicide from said chamber into said container through said lumen.

4. The method of Claim 1, further comprising venting said chamber after flowing said germicide from said chamber into said container through said lumen.

20 5. The method of Claim 1, wherein said germicide comprises hydrogen peroxide.

6. The method of Claim 1, wherein said interface comprises at least one opening.

25 7. The method of Claim 6, wherein said at least one opening comprises a material which is permeable to said germicide, whereby a contact area between said interface and said lumen is contacted with said germicide.

8. The method of Claim 6, further comprising adjusting said at least one opening.

30 9. The method of Claim 6, further comprising evacuating said container through a communication port in said container, wherein said communication port is different from said at least one opening.

10. A system for sterilizing a lumen, said lumen having at least a first end and a second end, said system comprising:

a container with at least one interface on a wall of said container, wherein said container does not contain germicide;

5 a chamber containing said container, wherein said lumen is placed across said at least one interface such that the first end of the lumen is in the container and the second end of the lumen is in the chamber;

at least one pump to evacuate the chamber and said container; and  
a source of germicide.

10 11. The system of Claim 10, wherein the source of germicide is in said chamber or in an enclosure in fluid communication with said chamber.

12. The system of Claim 10, wherein said source of germicide comprises hydrogen peroxide.

15 13. The system of Claim 10, wherein said at least one interface comprises at least one opening.

14. The system of Claim 13, wherein said at least one opening comprises a material which is permeable to germicide generated from said source of germicide, wherein said material is located at least in a contact area between said at least one interface and said lumen.

20 15. The system of Claim 13, wherein said container further comprises a communication port in fluid communication with said at least one pump, wherein said communication port is different from said at least one opening.

16. The system of Claim 13, wherein said at least one opening is adjustable.

25 17. A system for sterilizing a lumen device comprising:  
a chamber having at least one interface in the chamber, wherein said at least one interface in said chamber separates said chamber into a first area and a second area;

a source of germicide; and

30 a container inside said chamber, wherein at least a portion of said container is located in said first area of said chamber and at least a portion of

said container is located in said second area of said chamber, said container comprising:

at least one interface in said container, wherein said at least one interface in said container separates said container into at least a first compartment and a second compartment;

at least one communication port in said container, wherein said at least one communication port provides fluid communication between said container and said chamber; and

at least one lumen device extending across said at least one interface in said container, whereby said first compartment is in fluid communication with said second compartment through said lumen device.

18. The system of Claim 17, wherein said at least one interface comprises at least one opening.

19. The system of Claim 18, wherein said at least one opening is adjustable.

20. The system of Claim 18, wherein said at least one opening comprises a material which is permeable to germicide generated from said source of germicide, wherein said material is located at least in a contact area between said at least one interface and said lumen.

21. The system of Claim 17, further comprising at least one vacuum pump to evacuate said chamber and/or said container.

22. The system of Claim 17, wherein said source of germicide comprises hydrogen peroxide.

23. The system of Claim 17, wherein said at least one communication port comprises a gas or vapor permeable membrane.

24. The system of Claim 23, wherein said gas or vapor permeable membrane is impermeable to microorganisms.

25. The system of Claim 17, wherein at least one communication port provides fluid communication between said first compartment and said chamber and at least one communication port provides fluid communication between said second compartment and said chamber.

26. A method for sterilizing a lumen device, said method comprising:  
enclosing a container in a chamber, said container comprising:

an interface, wherein said interface separates said container into a  
first compartment and a second compartment;

at least one lumen device extending across said interface,  
whereby said first compartment is in fluid communication with said  
second compartment through said lumen device; and

at least one communication port in said container, wherein said at  
least one communication port provides fluid communication between  
said container and said chamber;

providing a germicide in at least one of said chamber, said container, and  
an enclosure in fluid communication with said chamber;

creating a pressure difference between said chamber and said container;

creating a pressure difference between said first compartment and said  
second compartment;

flowing germicide between said chamber and said container through said  
at least one communication port in said container; and

flowing germicide between said first compartment and said second  
compartment through said lumen device.

27. The method of Claim 26, wherein said germicide comprises hydrogen  
peroxide.

28. The method of Claim 26, further comprising removing said container  
from said chamber.

29. The method of Claim 26, further comprising maintaining the sterility of  
the lumen device in the container.

30. The method of Claim 26, wherein said interface comprises at least one  
opening.

31. The method of Claim 30, wherein said at least one opening comprises a  
material which is permeable to said germicide, whereby a contact area between said  
interface and said lumen is contacted with said germicide.

32. The method of Claim 30, further comprising adjusting said at least one opening.

33. A system for sterilizing a lumen device in a chamber, said system comprising:

5 a vacuum chamber;

an interface, wherein said interface separates said vacuum chamber into a first compartment and a second compartment;

at least one lumen device extending across said interface, whereby said first compartment is in fluid communication with said second compartment through said lumen device;

a source of germicide; and

at least one vacuum pump.

34. The system of Claim 33, wherein said interface further comprises at least one opening.

15 35. The system of Claim 34, wherein said at least one opening is adjustable.

36. The system of Claim 34, wherein said at least one opening comprises a material which is permeable to germicide generated from said source of germicide, wherein said material is located at least in a contact area between said interface and said lumen.

20 37. The system of Claim 33, wherein a germicide vapor or gas is generated from said source of germicide.

38. The system of Claim 33, wherein said source of germicide comprises hydrogen peroxide.

25 39. A method for sterilizing a lumen device in a vacuum chamber, said method comprising:

separating said vacuum chamber into a first compartment and a second compartment with an interface, wherein at least one lumen device extends across said interface, whereby said first compartment is in fluid communication with said second compartment through said at least one lumen device;

30 evacuating the vacuum chamber, thereby decreasing the pressure in said first compartment and said second compartment;

introducing germicide into at least one of said first compartment and said second compartment, wherein said introducing occurs after evacuating; and

creating a pressure difference between said first compartment and said second compartment, thereby flowing germicide between said first compartment and said second compartment through said at least one lumen device.

5

40. The method of Claim 39, wherein said germicide comprises hydrogen peroxide.

41. The method of Claim 39, wherein said interface comprises at least one opening.

10

42. The method of Claim 41, wherein said at least one opening comprises a material which is permeable to said germicide, whereby a contact area between said interface and said lumen is contacted with germicide.

43. The method of Claim 41, further comprising adjusting said at least one opening.

15

44. The method of Claim 39, further comprising increasing a pressure in said first compartment and in said second compartment, wherein said increasing is after said introducing and said creating a pressure difference.